

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2004/002774

International filing date (day/month/year)
27.08.2004

Priority date (day/month/year)
27.08.2003

International Patent Classification (IPC) or both national classification and IPC
C07C319/26, C07C323/53

Applicant
UNIVERSITY OF CAPE TOWN

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/002774

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/002774

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-18
	No: Claims	
Inventive step (IS)	Yes: Claims	1-18
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reference is made to the following documents:

- D1: K.D.GUNDERMANN ET.AL.: "METHODEN DER ORGANISCHEN CHEMIE (HOUBEN-WEYL) BAND E11" 1985, GEORG THIEME VERLAG , STUTTGART, NEW YORK , XP002316126
- D2: H.S.C. SPIES ET.AL.: "THIOLS OF INTRACELLULAR PATHOGENS: IDENTIFICATION OF OVOTHIOIOL A IN LEISHMANIA DONOVANI AND STRUCTURAL ANALYSIS OF A NOVEL THIOL FROM MYCOBACTERIUM BOVIS (BCG)" EUR. J. BIOCHEM., vol. 224, 1994, pages 203-213, XP000673267
- D3: WO 99/21580 A1 (THE REGENTS OF THE UNIVERSITY OF CALIFORNIA; FAHEY, ROBERT, C; NEWTON,) 6 May 1999 (1999-05-06)

The present application is directed to a method of isolating a thiol R'SH from a thiol-containing mixture, the method including the steps of forming a mixed disulphide R'SSR of the thiol R'SH in the mixture, in which R is a non-immobilised hydrophobic moiety; purifying the mixed disulphide R'SSR; reducing the purified mixed disulphide R'SSR to produce a mixture of thiols R'SH and RSH; and isolating the thiol R'SH.

D3 represents the closest prior art discloses the reversed phase HPLC separation of mycothiol and mycothiol disulphide. However, D3 differs from the matter of the present application insofar, that no mixed disulphide is formed.

The technical problem may be regarded as the provision of an improved method for the isolation of thiols.

The solution is given in claim 1 and concerns the formation of a mixed disulphide R'SSR with R is a non-immobilised hydrophobic moiety. This moiety is advantageous for the chromatographic separation and is not deducible for the skilled person from D3.

Thus, the subject matter of claims 1-18 fulfills the criteria of Article 33(2) and (3) PCT.